

Versatile Cassava is at home in Asia

Douglas W. Wholey

The words "food" and "rice" are synonymous in most parts of Asia, so at first sight it seems strange that a root crop should be commanding attention in the lowland tropical areas of the continent. Even more strange when one considers that Indonesia will harvest around 10 million metric tons of a crop that was only introduced into the country a little over 100 years ago. Enough has been published by IDRC recently to enable me to give the reason for the attention being paid to cassava very briefly: it is a very efficient producer of carbohydrate.

The diversity of uses to which this carbohydrate is put almost reflects the diversity of the societies producing it. In India the majority of the national cassava crop is for human consumption, whereas in Thailand most of the crop is exported to Europe for animal feed. In Indonesia, where the crop's value as human food was first fully realized during rice shortages between 1914 and 1918, low labour costs are enabling the country to enter into the European animal feed market on a rapidly expanding scale. Exports of pellets from Sumatra have expanded from 3,000 tons in 1967 to an expected 200,000 tons this year. In Malaysia, comparatively higher labour costs will make it very difficult to export to Europe at present prices, but rather than sell the

commodity to feed someone else's animals, Malaysia intends to feed cassava to her own expanding livestock industry, thereby reducing the import bill of more costly feedstuff components, such as maize. However, not to be pushed out of the export market, Malaysia has an expanding trade in cassava starch, pearl and flake, which command higher export prices than animal feed.

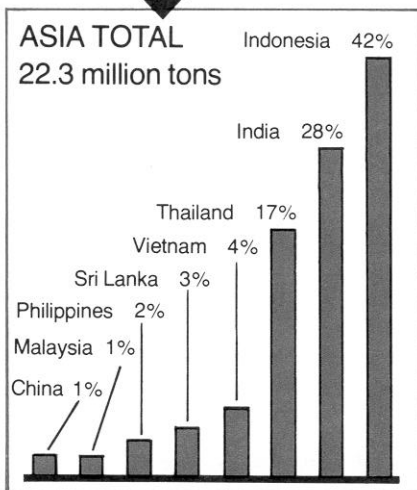
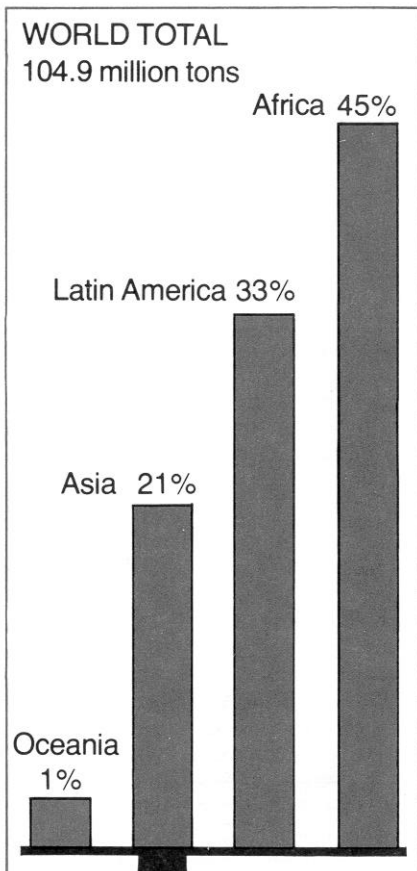
Just how does Asia, the newcomer to cassava production, compare with the rest of the world? According to the 1974 FAO Yearbook, Asia is breathing down the neck of Latin America, the home of the cassava crop (see Table). However, both these continents are losing ground to Africa, where cassava production is rapidly increasing in the traditionally root crop consuming West African countries of Zaire and Nigeria. Indonesia has been pushed out from second world producer of cassava after Brazil, to fourth place by these two African countries.

Enough of statistics. What has been done in the past to promote the production of cassava in Asia? Surprisingly little in fact. Rather the opposite in some countries, for example, in Malaysia, it was taught in agricultural college that cassava depleted the soil to such an extent that no other crop would flourish if planted after cassava. It was



Cassava fertility trials at the Malaysian Agricultural Research and Development Institute.

Photo: Neill McKee



written into tenancy agreements that cassava should not be planted on the land. Some isolated research by national departments of agriculture and universities can be found in the literature, usually representing the interest of one individual for a short period of time. However some quality agronomic research has been carried out in the region, particularly in Indonesia before World War II and in Sri Lanka towards the end of the war.

The first serious attempt to set up a continuous national program of cassava research was in India, with the founding of the Central Tuber Crops Research Institute (CTCRI) at Trivandrum, Kerala State in 1963. In Thailand, the only cassava research until recently was carried out by the Ministry of Agriculture, and was solely agronomic in nature. Similarly in Malaysia and Indonesia, the little cassava research that was going on was handled by the Department of Agriculture and the Central Research Institute for Agriculture respectively.

However, a change is coming to the cassava-producing countries of Asia. Multidisciplinary national programs are being set up by governments, and universities are becoming more involved. The Malaysian Agricultural Research and Development Institute (MARDI), set up in 1969, is currently staffing and equipping a team of cassava research workers with assistance from IDRC. This team will breed and select new varieties, and develop better production systems amongst other objectives. Team members will spend periods at the International Centre for Tropical Agriculture (CIAT) in Colombia, which is devoting particular attention to cassava. They will work with CIAT

scientists and gain experience with the crop in its "home environment". In the Philippines the Council for Agricultural Resources Research has recently set up a long-term root crop program and IDRC has been asked to assist during the initial stages.

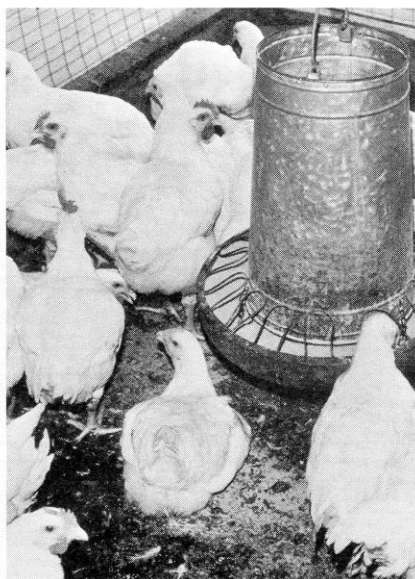
In Thailand attention is being directed towards utilization of cassava as well as production. At Khon Kaen University a team of animal scientists is looking into feed-quality aspects of cassava chips with IDRC support. It is hoped that the results of their research will demonstrate the value of producing better quality animal feed from cassava. Along similar lines, the Asian Institute of Technology in Bangkok, with funds from IDRC, is looking into inexpensive means to improve the sun-drying techniques used in the manufacture of cassava chips, and better pelleting methods, again aimed at improving product quality.

Apart from research to expand or improve upon existing systems, IDRC is also funding innovative research on cassava. At the University of Malaya, Kuala Lumpur, a team is looking into the microbial enrichment of cassava, as a possible means of increasing the protein content, and its subsequent use as an animal feedstuff. In Java, Indonesia, Brawijaya University is investigating a novel practice developed by a local farmer 20 or so years ago. *Manihot glaziovii*, a "tree cassava" brought from its native South America as a potential latex producer, but widely adopted as a shade tree growing on the sides of the roads, is grafted to cassava increasing the yield of roots by up to 100 percent. This "Mukibat" method, named for the man who first developed the technique, may indirectly hold a key to the physiological processes leading to high-yield in cassava.

To date, IDRC has donated \$1,330,400 in support of seven cassava-related projects in Asia. In order to coordinate the activities of these and other cassava projects in the region CIAT will soon be placing a staff member in Asia. In this way research findings and improved varieties will become more readily available and production problems can be channelled to projects within the region or to CIAT for solution. This important step in the structuring of a cassava network for Asia, is similar to one already initiated by CIAT for Latin America, both of these "outreach" activities being supported by IDRC. With this increased attention on cassava research, who knows maybe Asia will outstrip South America in cassava production by the end of the decade? □



Indonesian women with a display of cassava food products.



In Thailand chickens are fed on an experimental cassava diet.

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